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## Title

## Bluetooth: Carrying Voice over ACL Links

## Abstract

Bluetooth technology will enable users to connect a wide range of electronic devices. Bluetooth devices can connect to form a piconet. Two types of connections can be established in a piconet: the synchronous connection-oriented (SCO) link, and the asynchronous connectionless (ACL) link. SCO links provide a circuit-oriented service with constant bandwidth based on a fixed and periodic allocation of slots. They require a pair of slots once every two, four or six slots, depending upon the SCO packet used. ACL connections, on the other hand, provide a packet-oriented service and span over 1, 3 or 5 slots. The master of the piconet uses a polling mechanism to divide the piconet bandwidth among the ACL links. Since SCO links require a periodic allocation of a pair of slots, they leave very little of the piconet bandwidth available to ACL links. Moreover, the controlled access of Bluetooth ensures that no ACL link gets starved. Under such an access mechanism, ACL links may be sufficient to carry high-quality voice and SCO links may not be needed. Though the voice quality is affected slightly by using ACL instead of SCO links for voice, TCP connections perform much better if SCO links are not used. This paper, thus, makes a case for using ACL in place of SCO links for carrying voice. This renders SCO links redundant.

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